

REMARKS

Claims 1, 5-28, 32-34 and 36-39 remain in the application, in which claims 7-14, 18-23, 32-34 and 36-39 have been withdrawn from consideration. Claims 1, 5, 15, 17, 26, and 27 are currently amended. Claim 4 is cancelled. Applicants respectfully request for allowance of the elected claims 1, 5, 6, 15-17, and 24-28.

Rejections under 35 U.S.C. §103

Claims 1, 4-6, 15, 17, 25, and 26 are rejected under 35 USC 103(a) as being unpatentable over U.K. Patent No. GB 1,416,168 to Frankl (hereinafter referred to as “Frankl”).

Claim 1, as amended, is directed to a method of monitoring the condition of a pump the method comprising the steps of: generating a predetermined test condition in the pump comprising generating and sustaining for a substantial period of time an abnormal pump speed outside a range of normal pump operation speed whereby the pump is subject to an increased stress as compared with normal operating stresses, thereby causing a reduction in clearance between a rotor and a stator of the pump; and obtaining signals indicative of an amount of the clearance between the rotor and the stator of the pump during a period in which the test condition is present, wherein the signals are derived from a current consumed by a motor driving the rotor of the pump.

Frankl does not teach the claim limitation “*obtaining signals indicative of an amount of the clearance between the rotor and the stator of the pump.*” Frankl is about measuring the hysteresis of a governor at a particular speed, which is defined as the difference between a first position of control rod 13 at that speed when the speed is rising and a second position of control rod 13 at the same speed when the speed is falling. *See,*

col. 1, lines 21-26. In Frankl, two voltage signals are generated. The first voltage signal

is generated to indicate a pump speed. *See, col. 1, lines 30-34.* The second voltage signal is generated to indicate a position of control rod 13. *See, col. 1, lines 34-40.* Applicants respectfully submit that none of the first and second voltage signals indicates an amount of the clearance between a rotor and stator of a pump. Although the control rod 13 may have various axial positions at a given pump speed, such positions are no indicators of how close the rotor is running from the stator when the pump is in operation.

Neither does Frankl teach the claim limitation “*the signals are derived from a current consumed by a motor driving the rotor of the pump.*” As the running clearance between the rotor and stator gets closer, the rotor and stator may rub against each other, thereby causing the current consumed by the motor to increase. In the claimed invention, signals are derived from the current consumed by the motor to indicate the amount of the clearance between the rotor and the stator. Unlike the claimed invention, Frankl derive signals from voltages dependent on the pump speed and the position of control rod 13. *See, col. 1, lines 30-40.* This is quite different from the claimed invention. For example, as a given pump speed, the signal of the claimed invention may vary depending on the clearance between the rotor and stator, whereas the first voltage signal of Frankl would be the same in spite of the clearance there between.

As such, claim 1 is patentable under 35 USC 103(a) over Frankl. Accordingly, claims 5, 6, 15, 17, 25, and 26 that depend from claim 1 and include all the limitations recited therein are also patentable over Frankl. It is noted that claim 4 is cancelled.

Claim 16 is rejected under 35 USC 103(a) as being unpatentable over Frankl in view of US Patent No. 6,536,271 to Gopalakrishnan et al. (hereinafter referred to as “Gopalakrishnan”). Claims 24, 27, and 28 are rejected under 35 USC 103(a) as being unpatentable over Frankl in view of US Patent No. 6,648,606 to Sabini et al. (hereinafter referred to as “Sabini”).

As discussed above, claim 1 is patentable under 35 USC 103(a) over the cited prior art reference. Accordingly, claims 16, 24, 27, and 28 that depend from claim 1 and include all the limitations recited therein are also patentable over the cited prior art references.

Claims 1, 4-6, 17, 24, and 26 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,045,331 to Gehm et al. (hereinafter referred to as “Gehm”).

Gehm does not teach the claim limitation *“obtaining signals indicative of an amount of the clearance between the rotor and the stator of the pump.”* Gehm is about an operational process for optimizing energy consumption of a pump. *See, col. 2, lines 35-36.* In the process, if an operator detects clatter, he would simply set the pump speed 10% higher to eliminate the noise. *See, col. 4, lines 58-65.* The clatter is no signal indicating the clearance between the rotor and the stator, let alone the amount of it. It indicates insufficient operating pressure level or pump speed in a milking process. *See, col. 2, lines 13-25.* Gehm does not teach or suggest that measuring clearance reduction is a concern to be addressed.

Neither does Gehm teach the claim limitation “*the signals are derived from a current consumed by a motor driving the rotor of the pump.*” In Gehm, the sensor 7 measures the pressure in the fluid pipe 5. *See, col. 3, lines 55-57.* However, it does not teach or suggest any device that derives signals from the current consumed by the motor.

As such, claim 1 is patentable under 35 USC 103(a) over Gehm. Accordingly, claims 5, 6, 17, 24, and 26 that depend from claim 1 and include all the limitations recited therein are also patentable over Gehm.

Claim 16 is rejected under 35 USC 103(a) as being unpatentable over Gehm in view of Gopalakrishnan. Claims 24, 27, and 28 are rejected under 35 USC 103(a) as being unpatentable over Gehm in view of Sabini.

As discussed above, claim 1 is patentable under 35 USC 103(a) over the cited prior art reference. Accordingly, claims 16, 24, 27, and 28 that depend from claim 1 and include all the limitations recited therein are also patentable over the cited prior art references.

CONCLUSION

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicants do not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

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